

What is claimed is:

1. A picked-up-sound reproducing method for picking up a sound present in a first sound field and reproducing the picked-up sound in a second sound field, said picked-up-sound reproducing method comprising:

a step of detecting a sound pressure present in said first sound field and a sound pressure reproduced in said second sound field; and

a step of adjusting a sound pressure to be reproduced in said second sound field so that the sound pressure present in said first sound field and the sound pressure to be reproduced in said second sound field assume a predetermined relationship.

2. A picked-up-sound reproducing method for picking up a sound present in a first sound field at a position of one wall surface of said first sound field and reproducing the picked-up sound at a position of one wall surface in a second sound field, said picked-up-sound reproducing method comprising:

a step of detecting a sound pressure picked up in said first sound field and a sound pressure reproduced in said second sound field; and

a step of adjusting a sound pressure to be reproduced in said second sound field so that the sound pressure picked up in said first sound field and the sound pressure to be reproduced in said second sound field assume a predetermined relationship.

3. A picked-up-sound reproducing method for picking up a sound present in a first sound field to reproduce the picked-up sound in a second sound field and picking up a sound present in said second sound field to reproduce the picked-up sound in said first sound field, said picked-up-sound reproducing method comprising:

a step of detecting a sound pressure present in said first sound field and a sound pressure reproduced in said second sound field, and adjusting a sound pressure to be reproduced in said second sound field so that the sound pressure present in said first sound field and the sound pressure to be reproduced in said second sound field assume a predetermined relationship; and

a step of detecting a sound pressure present in said second sound field and a sound pressure reproduced in said first sound field, and adjusting a sound pressure to be reproduced in said first sound field so that the sound pressure present in said second sound field and the sound pressure to be reproduced in said first sound field assume a predetermined relationship.

4. A picked-up-sound reproducing method for picking up a sound present in a first sound field at a position of one wall surface of said first sound field to reproduce the picked-up sound at a position of one wall surface in a second sound field and picking up a sound present in said second sound field at a position of the one wall surface of said second sound field to reproduce the picked-up sound at a position of the one wall

surface position in said first sound field, said picked-up-sound reproducing method comprising:

a step of detecting a sound pressure picked up in said first sound field and a sound pressure reproduced in said second sound field, and adjusting a sound pressure to be reproduced in said second sound field so that the sound pressure picked up in said first sound field and the sound pressure to be reproduced in said second sound field assume a predetermined relationship; and

a step of detecting a sound pressure picked up in said second sound field and a sound pressure reproduced in said first sound field, and adjusting a sound pressure to be reproduced in said first sound field so that the sound pressure picked up in said second sound field and the sound pressure to be reproduced in said first sound field assume a predetermined relationship.

5. A picked-up-sound reproducing method as claimed in claim 3 wherein adjustment of the sound pressure to be reproduced in said first sound field and adjustment the sound pressure to be reproduced in said second sound field is performed with a time difference therebetween, and wherein when the sound pressure to be reproduced in said first sound field is to be adjusted, operations for picking up a sound present in said first sound field to reproduce the picked-up sound in said second sound field are stopped, and when the sound pressure to be reproduced in said second sound field is to be adjusted, operations for picking up a sound present in said second sound field to reproduce the

picked-up sound in said first sound field are stopped.

6. A picked-up-sound reproducing apparatus comprising:

a first microphone that is provided at a position of one wall surface of a first sound field to pick up a sound present in said first sound field;

a signal transfer pathway that transmits the sound, picked up by said first microphone, to a second sound field;

a speaker that is provided at a position of one wall surface of a second sound field to reproduce the sound transmitted via said signal transfer pathway;

a second microphone that is provided at a position of the one wall surface of said second sound field to pick up the sound reproduced by said speaker;

a first detection section that detects a sound pressure picked up by said first microphone;

a second detection section that detects a sound pressure with which the sound picked up by said first microphone and reproduced by said speaker is picked up by said second microphone; and

an adjustment section that adjusts a sound pressure to be reproduced by said speaker in such a manner that the sound pressures detected by said first detection section and said second detection section assume a predetermined relationship.

7. A picked-up-sound reproducing apparatus as claimed in claim 6 wherein a plurality of said picked-up-sound reproducing

apparatus are provided between said first sound field and said second sound field to provide a plurality of processing channels, and each of said processing channels includes said second microphone and said speaker positioned close to each other, and wherein said second microphones and said speakers of individual ones of the processing channels in said second sound field are arranged in corresponding relation to arrangement of said first microphones of the individual processing channels in said first sound field.

8. A picked-up-sound reproducing apparatus as claimed in claim 7 wherein said adjustment section adjusts the sound pressure to be reproduced by said speaker so that a value obtained by modifying the sound pressure, detected by said first detection section or said second detection section, in accordance with a value determined by dividing an area of the one wall surface of said second sound field by a total number of the processing channels equals a value of the sound pressure detected by said second detection section or said first detection section.

9. A picked-up-sound reproducing apparatus as claimed in claim 7 wherein said first microphones of the individual processing channels are arranged in said first sound field in a linear or planar configuration, and said second microphones and speakers of the individual processing channels are arranged in said second sound field in a linear or planar configuration.

10. A picked-up-sound reproducing apparatus as claimed in claim 7 wherein said first sound field and said second sound field are separated by a window in the form of a transparent plate member made of glass or resin, and wherein said second microphones and speakers of the individual processing channels are arranged in said second sound field in a linear configuration along either or both of upper and lower edges of said window, and said first microphones of the individual processing channels are arranged in said first sound field in a linear configuration along either or both of the upper and lower edges of said window.

11. A picked-up-sound reproducing apparatus as claimed in claim 6 wherein said speaker and said second microphone to be combined with said speaker are together incorporated in a speaker box in substantially parallel, side-by-side adjoining relation to each other.

12. A picked-up-sound reproducing apparatus as claimed in claim 6 wherein the sound picked up by said first microphone is transmitted, with a gain of 1, to said second sound field via said signal transfer pathway, and said first detection section detects a sound pressure from a sound signal transmitted to said second sound field via said signal transfer pathway.

13. A picked-up-sound reproducing apparatus comprising:  
a first microphone that is provided at a position of one wall

surface of a first sound field to pick up a sound present in said first sound field;

a first signal transfer pathway that transmits the sound, picked up by said first microphone, to a second sound field;

a second-sound-field speaker that is provided at a position of one wall surface of said second sound field to reproduce the sound transmitted via said first signal transfer pathway;

a second microphone that is provided at a position of the one wall surface of said second sound field to pick up a sound present in said second sound field;

a second signal transfer pathway that transmits the sound, picked up by said second microphone, to said first sound field;

a first-sound-field speaker that is provided at a position of the one wall surface of said first sound field to reproduce the sound transmitted via said second signal transfer pathway;

a first detection section that detects a sound present in said first sound field picked up by said first microphone;

a second detection section that detects a sound pressure with which the sound present in said first sound field picked up by said first microphone and reproduced by said second-sound-field speaker is picked up by said second microphone;

a first adjustment section that adjusts a sound pressure to be reproduced by said second-sound-field speaker in such a manner that the sound pressures detected by said first detection section and said second detection section assume a predetermined relationship;

a third detection section that detects a sound pressure



present in said second sound field picked up by said second microphone;

a fourth detection section that detects a sound pressure with which the sound present in said second sound field picked up by said second microphone and reproduced by said first-sound-field speaker is picked up by said first microphone; and

a second adjustment section that adjusts a sound pressure to be reproduced by said first-sound-field speaker in such a manner that the sound pressures detected by said third detection section and said fourth detection section assume a predetermined relationship.

14. A picked-up-sound reproducing apparatus as claimed in claim 13 wherein a plurality of said picked-up-sound reproducing apparatus are provided between said first sound field and said second sound field to provide a plurality of processing channels, and each of said processing channels includes said first microphone and first-sound-field speaker positioned close to each other and said second microphone and second-sound-field speaker positioned close to each other, and wherein said second microphones and second-sound-field speaker speakers of individual ones of the processing channels in said second sound field are arranged in horizontal symmetrical relation to arrangement of said first microphones and first-sound-field speaker speakers of the individual processing channels in said first sound field.



15. A picked-up-sound reproducing apparatus as claimed in claim 14 wherein said first adjustment section adjusts the sound pressure to be reproduced by said second-sound-field speaker so that a value obtained by modifying the sound pressure, detected by said first detection section or said second detection section, in accordance with a value determined by dividing an area of the one wall surface of said second sound field by a total number of the processing channels equals a value of the sound pressure detected by said second detection section or said first detection section, and

wherein said second adjustment section adjusts the sound pressure to be reproduced by said first-sound-field speaker so that a value obtained by modifying the sound pressure, detected by said second detection section or said first detection section, in accordance with a value determined by dividing an area of the one wall surface of said first sound field by a total number of the processing channels equals a value of the sound pressure detected by said first detection section or said second detection section.

16. A picked-up-sound reproducing apparatus as claimed in claim 14 wherein said microphones and speakers of the individual processing channels are arranged in said first sound field and said second sound field in a linear or planar configuration.

17. A picked-up-sound reproducing apparatus as claimed in

claim 16 wherein, in each of said first sound field and said second sound field, a TV camera is provided generally in a center of the arrangement of said microphones and speakers of the individual processing channels, a sound-transmissive screen is disposed on a front surface of the arrangement of said microphones, speakers and TV camera, said screen has a window formed in a position thereof corresponding to a position of said TV camera, and a video projector is disposed in front of said screen above or below said screen, and

wherein an image, representative of a scene in front of said screen, picked up by said TV camera in said first sound field is transmitted, via a transfer pathway, to said second sound field so that the image is projected onto said screen by said video projector in said second sound field, and an image, representative of a scene in front of said screen, picked up by said TV camera in said second sound field is transmitted, via the transfer pathway, to said first sound field so that the image is projected onto said screen by said video projector in said first sound field.

18. A picked-up-sound reproducing apparatus as claimed in claim 13 wherein said first-sound-field speaker and said first microphone to be combined with said first-sound-field speaker are together incorporated in a speaker box in substantially parallel, side-by-side adjoining relation to each other, and said second-sound-field speaker and said second microphone to be combined with said second-sound-field speaker are together

incorporated in a speaker box in substantially parallel, side-by-side adjoining relation to each other.

19. A picked-up-sound reproducing apparatus as claimed in claim 13 wherein the sound picked up by said first microphone is transmitted, with a gain of 1, to said second sound field via said first signal transfer pathway and the sound picked up by said second microphone is transmitted, with a gain of 1, to said first sound field via said second signal transfer pathway, and

wherein said first detection section detects a sound pressure present in said first sound field from a sound signal transmitted to said second sound field via said first signal transfer pathway and said third detection section detects a sound pressure present in said second sound field from a sound signal transmitted to said first sound field via said second signal transfer pathway.

20. A picked-up-sound reproducing apparatus as claimed in claim 13 which further comprises:

a first echo canceler that removes, from a sound signal picked up by said first microphone, a sound component reproduced by said first-sound-field speaker; and

a second echo canceler that removes, from a sound signal picked up by said second microphone, a sound component reproduced by said second-sound-field speaker.

21. A picked-up-sound reproducing apparatus as claimed in

claim 6 wherein, in each of said sound fields having said microphone and speaker, a sound-absorbing material is disposed around or in front of said microphone and speaker.

1. A sound field having a microphone and a speaker, a sound-absorbing material being disposed around or in front of said microphone and speaker.

2. A sound field having a microphone and a speaker, a sound-absorbing material being disposed around or in front of said microphone and speaker.

3. A sound field having a microphone and a speaker, a sound-absorbing material being disposed around or in front of said microphone and speaker.

4. A sound field having a microphone and a speaker, a sound-absorbing material being disposed around or in front of said microphone and speaker.

5. A sound field having a microphone and a speaker, a sound-absorbing material being disposed around or in front of said microphone and speaker.

6. A sound field having a microphone and a speaker, a sound-absorbing material being disposed around or in front of said microphone and speaker.

7. A sound field having a microphone and a speaker, a sound-absorbing material being disposed around or in front of said microphone and speaker.

8. A sound field having a microphone and a speaker, a sound-absorbing material being disposed around or in front of said microphone and speaker.

9. A sound field having a microphone and a speaker, a sound-absorbing material being disposed around or in front of said microphone and speaker.

10. A sound field having a microphone and a speaker, a sound-absorbing material being disposed around or in front of said microphone and speaker.